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Title

Characteristic-function-based independent component analysis.

Source

Signal Processing, {Signal-Process-Netherlands}, Oct. 2003, vol. 83, no. 10, p. 2195-208, 30 refs, CODEN: SPRODR, ISSN: 0165-1684.

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Abstract

A novel characteristic-function-based method for **blind separation** of statistically independent **source** signals is proposed in the independent component analysis (ICA) framework. The definition of independence may be given in terms of factorization of joint characteristic function. These criteria always exist and two of them have desirable large sample properties. An objective function for estimating the independence criteria directly from data is proposed. Simulation results demonstrate that the method performs reliably even in such situations where many widely used ICA methods may fail.

Descriptors

 **BLIND-SOURCE-SEPARATION**;  **INDEPENDENT-COMPONENT-ANALYSIS**;  **MINIMISATION**.

Classification codes

B6140 [Signal-processing-and-detection*](#);
B0240Z [Other-topics-in-statistics](#);
B0260 [Optimisation-techniques](#);
C1260S [Signal-processing-theory*](#);
C1180 [Optimisation-techniques](#);
C1140Z [Other-topics-in-statistics](#).

Keywords

characteristic-function-based-method; independent-component-analysis; **blind-source-separation**;

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Classification codes A: Physics, 0-1

independent-source-signals; joint- characteristic-function-factorization; independence-criteria;
empirical-characteristic-function; **Jacobi-algorithm**; Fourier-methods; mutual-information;
optimization; asymptotic-properties; Gaussian-noise.

Treatment codes

T Theoretical-or-mathematical.

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